

P-ISSN: 2338-8617

E-ISSN: 2443-2067

Jurnal Ilmiah  
**PEURADEUN**

Vol. 12, No. 2, May 2024



**JIP**

The Indonesian Journal of the Social Sciences  
[www.journal.scad-independent.org](http://www.journal.scad-independent.org)  
DOI Prefix Number: 10.26811

INDEX COPERNICUS  
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 **sinta**   
Science and Technology Index

Accredited "Sinta 1" by Decree No. 72/E/KPT/2024  
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**Vol. 12, No. 2, May 2024**

**Pages: 695-716**

**Fuzzy Delphi Method for Developing Model of Islamic Self-Identity  
in Malaysian Delinquent Adolescents**

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**Article in Jurnal Ilmiah Peuradeun**

Available at : <https://journal.scadindepedent.org/index.php/jipeuradeun/article/view/1002>

DOI : <https://doi.org/10.26811/peuradeun.v12i2.1002>

**How to Cite this Article**

APA : Majid, M.A., Usman, A.H., Azizan, N.I., Haridi, N.H.M., Mohamad, N., Ismail, Z., Rahman, A.H.A. (2024). Fuzzy Delphi Method for Developing Model of Islamic Self-Identity in Malaysian Delinquent Adolescents. *Jurnal Ilmiah Peuradeun*, 12(2), 695-716.  
<https://doi.org/10.26811/peuradeun.v12i2.1002>

Others Visit : <https://journal.scadindepedent.org/index.php/jipeuradeun>

Jurnal Ilmiah Peuradeun (JIP), *The Indonesian Journal of the Social Sciences*, is a leading peer-reviewed and open-access journal, which publishes scholarly works, and specializes in the Social Sciences that emphasize contemporary Asian issues with interdisciplinary and multidisciplinary approaches. JIP is published by SCAD Independent and published 3 times a year (January, May, and September) with p-ISSN: 2338-8617 and e-ISSN: 2443-2067. JIP has become a CrossRef member. Therefore, all articles published will have a unique DOI number. JIP has been accredited Rank 1 (Sinta 1) by the Ministry of Education, Culture, Research, and Technology, the Republic of Indonesia through the Decree of the Director-General of Higher Education, Research and Technology No. 72/E/KPT/2024, dated April 1, 2024. This accreditation is valid until the May 2027 edition.

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## FUZZY DELPHI METHOD FOR DEVELOPING MODEL OF ISLAMIC SELF-IDENTITY IN MALAYSIAN DELINQUENT ADOLESCENTS

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Received: April 5, 2023

Accepted: December 10, 2023

Published: May 30, 2024

Article Url: <https://journal.scad-independent.org/index.php/jipeuradeun/article/view/1002>

### Abstract

The research gap in this article is due to lack of religious appreciation in the soul as well as a low level of self-identity among adolescents that occur in many cases. Youth self-identity development programs are much in need as a guide for dealing with the issues of youth involvement in social problems. Therefore, this study aims to present the components of the development model for delinquent adolescent self-identity according to the Islamic perspective based on the consensus of experts. To fulfil a particular set of this objective, we applied the Fuzzy Delphi method with a 7-point Likert scale to obtain the consensus of the expert group. The findings of the study illustrate that all the components of the self-identity development model of delinquent adolescents according to the Islamic perspective, which are the induction set, spiritual development, physical development, and follow-up of the main components, obtain expert consensus with an agreement level of more than 75% percent, the threshold value was less than 0.2 ( $d < 0.2$ ) and the value  $a$ -cut exceeds 0.5. Finally, the components of this model could be used as a basis and guide in efforts to develop self-identity of delinquent adolescents according to the Islamic perspective.

**Keywords:** Fuzzy Delphi Method; Component Formation; Self-Identity Development Model; Delinquent Adolescent; Islamic Perspective.



## A. Introduction

Present-day adolescents are the next generation who will helm the country's leadership in the future (Schmidt, 2017). This generation of adolescents needs to have various preparations and self-strength for upholding the responsibility and role of front-line leaders in society as well as that of the country. This is because, the strength and weakness of a nation depend greatly on its young people who are the pillars and inheritors of the continued development and well-being of the country (Hulme, 2015). Young people who excel in various aspects such as academics, skills, personality, and self-identity are essential for positively contributing to the excellence and strengthening of the economy and the future of the country (Schnell & Azzolini, 2015). According to a renowned scholar Imam Hassan Al-Banna, the progress of a country in the future can be seen through today's youth because these youth are the continuation of leadership in the future (Solomon & Tausch, 2020).

However, what is of concern to all parties, is the rampant involvement of adolescents in cases of delinquent behavior, whether light or serious. According to Cicourel (2017), one of the social ills that made its presence in the community is juvenile delinquency, which is the vices or delinquency of young people. Among the juvenile delinquent cases that occur in the community are adultery, baby dumping, being caught nearby, rape, and drug abuse (Saim et al., 2014; Mohd Noor et al., 2022; Yamamah, 2022; Nawawi et al., 2022). Delinquency is a behavior that violates the norms of society that is done by individuals according to the age limit that of teenagers or youth (Chen et al., 2016). Teenagers are categorized as delinquents whereby in general they are individuals who are still in school and violate community norms (Welsh, 2000). However, in school institutions, individuals who violate these norms are more aptly known as students with disciplinary problems (Hinduja & Patchin, 2007).

Adolescence is a critical phase in human life, whereby teenagers will experience a transition from childhood to adulthood (Sawyer et al., 2018). Adolescent age begins from 13 to 21 years old (Kanacri et al., 2014). This is a

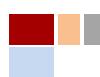
very fragile age, for the reason that adolescents are inclined to experiment based on what they see or hear; they could not care less if their actions positively or negatively impact their future. Notwithstanding, adolescence is a pertinent stage of development to express oneself or find one's self-identity (Spies Shapiro & Margolin, 2014).

Among the reported cases of juvenile delinquency are those contracting HIV/AIDS, involved in adultery, baby dumping, drinking alcohol, gambling, robbery, illegal race, snatch theft, and so on. Statistics show that Muslim youth of Malay ethnicity are the group most involved in cases of social transgression (Nasir, 2016).

Data from the Department of Social Welfare (JKM) shows that the highest statistical rate of cases for children between the ages of 10 and 21 are crimes involving property with a record of 1,717 in 2016. Types of property crimes include car theft, motorcycle theft, snatch theft, and burglary. Adolescent boys and girls aged 16 to 17 years have a high tendency to commit crimes. This is proven through statistical records of children involved in crime according to the type of offense, age group 16 to 17 years, and gender in 2016; where there were 3,426 boys and 225 girls. The data speaks volumes about the escalating issue of social decay in this society, particularly in cases involving adolescents (Kamaluddin et al., 2021).

Various efforts have been made by various parties whether government or private through the transformation of education as well as the application and practice of Islamic teachings to deal with delinquent behavior among teenagers, but the problem of delinquent misconduct among teenagers is still widespread (Tunggak et al., 2015). A strong sense of self-identity can hedge adolescents against getting caught up in the challenges of social decay. According to Phillips (2002), self-identity has its attributes and characteristics that underlie and form the identity of a nation from the aspects of custom, tradition, language, culture, and religion. It becomes the core and symbol of an individual's personality within a nation.

An effective method to restore and increase the strength of self-identity is to return them to a real appreciation of religion based on the



principles of the Quran and Sunnah education (Stapa et al., 2012). Al-Ghazali (1956) and Ulwan (2011), emphasize the importance of emotional, spiritual, physical, and follow-up program aspects to develop self-identity among adolescents. Self-identity needs to be considered from all human aspects including spiritual, physical, emotional, and intellectual (Chandler et al., 1992). Accordingly, the sound self-identity development model that consists of spiritual and physical components is important to be inculcated and developed into troubled adolescents so they would be able to lead a well-balanced life in this world and the hereafter.

Based on the problems presented, it prove that the self-identity development model among adolescents from the Islamic perspective needs to be designed. It benefits all parties in dealing with the issues of delinquency among adolescents.

## B. Method

This study uses the Fuzzy Delphi Technique introduced by Murray et al. (1985) and developed by Kaufmann and Gupta (1988) which is a combination of Fuzzy Delphi set theory and Delphi technique. This technique was applied to obtain an expert consensus in determining the main components of the self-identity development of delinquent adolescents by conducting a literature review of previous studies (Noh et al., 2019).

The research instrument used in this technique is a questionnaire, in which the experts determine the main components proposed in developing the self-identity of delinquent adolescents model. The items listed in the component are sourced from the highlights of literature and the analysis process on the needs.

Confirmation of the main components in the development of delinquent youth's self-identity according to the Islamic perspective is based on the consensus of experts using the Fuzzy Delphi method (FDM). In the design and development process of this model, 10 experts are directly involved in verifying the components of this study. All components must be deliberated on whether they are to be accepted or rejected before being

confirmed based on consensus from a group of experts who have direct experience in the context of the study.

The identified items are presented in the questionnaire to obtain expert consensus and subsequently analyzed using the Fuzzy Delphi technique. All question items are answered according to a 7-point Likert scale (from 1 = Extremely Unsuitable) to 7 = Extremely Appropriate) as shown in Table 1 below.

*Table 1. Level of consensus and fuzzy scale value*

<b>Level of Consensus</b>	<b>Fuzzy scale</b>	<b>Likert scale</b>
Extremely Inappropriate	(0.0, 0.0, 0.1)	1
Very Inappropriate	(0.0, 0.1, 0.3)	2
Inappropriate	(0.1, 0.3, 0.5)	3
Moderately Appropriate	(0.3, 0.5, 0.7)	4
Appropriate	(0.5, 0.7, 0.9)	5
Very suitable	(0.7, 0.9, 1.0)	6
Very Appropriate	(0.9, 1.0, 1.0)	7

*Source: (Jamil & Noh, 2020)*

Table 1 demonstrates that the higher the number on the scale, the more accurate the data obtained. In this study, the researchers choose a seven-point linguistic scale as shown. After all the experts have indicated their level of consensus, they are asked to give their views on each item in the questionnaire. The data from the Likert Scale obtained are subsequently translated into a form of Fuzzy number data and analyzed using Microsoft Excel software. This data analysis technique is known as the Fuzzy Delphi technique or Fuzzy Delphi Method (FDM) (Adler & Ziglio, 1996).

### 1. Expert Demographic

The 10 experts were selected from various backgrounds of expertise related to this study. The experts partaking in this study consist of professionals in the field of adolescent personality development,



development of morality and self-identity of adolescents, spiritual development, psychology, and executors or trainers who are responsible for carrying out the process of rehabilitation and self-identity development of delinquent juveniles. Table 2 exhibits the demographic information of the experts in this study.

Table 2. Expert demographic information

Expert	Position	Institution	Expertise
E1	Founding Director	Dr. Har Academy	Character Development
E2	Senior lecturer	Department of Education and Social Science Cluster, Open University Malaysia	Moral Development and Troubled Adolescents
E3	Senior Assistant Director	Enforcement & Inspectorate Division, Ministry of Higher Education, Malaysia	Adolescent Psychology
E4	Lecturer	Department of Dakwah and Usuluddin, Islamic University of Selangor	Spiritual Development
E5	Lecturer	Department of Dakwah and Usuluddin, Islamic University of Selangor	Spiritual Development
E6	Head of Registration of Converts & PIBK Development Division	Islamic Religious Council of Selangor (MAIS)	Implementation of Adolescent Rehabilitation
E7	CEO	Raudhatus Sakinah Guidance Center	Implementation of Adolescent Rehabilitation
E8	Psychology Officer	Henry Gurney School	Adolescent Psychology
E9	Principal	Darul Wardah Shelter and Guidance Center	Implementation of Adolescent Rehabilitation
E10	Director	Tarbiyyatul A'la Center	Implementation of Adolescent Rehabilitation

We selected a total of 10 experts based on the recommendations of Adler & Ziglio (1996) and Jones and Twiss (1978). In addition, the selection of the experts is based on their ability to substantiate their opinions on the subject matters of the study or revise their initial conclusions to reach a consensus among the experts (Pill, 1971). According

to Saaty and Özdemir (2014), adding more inexperienced experts can weaken the accuracy of the results.

## 2. Data Analysis

The analysis of research data for the Fuzzy Delphi method (FDM) is based on the conditions contained in the triangular fuzzy number. The conditions for the triangular fuzzy number involve the threshold value (d) and the percentage of expert consensus with the threshold value (d) for each measured item must be less than or equal to 0.2 (Chen et al., 2016; Cheng & Lin, 2002) and the percentage of expert group consensus must exceed or equal to 75% (Chu & Hwang, 2008; Murry & Hammons, 1995). In summary, the conditions for reaching an expert consensus are depicted in Table 3.

Table 3. Conditions of triangular fuzzy numbers and defuzzification

Requirement	Value
Threshold value (d)	$\leq 0.2$
Percent Expert Agreement	$\geq 75\%$
$\alpha$ -cut value	$\geq 0.5$

All the components of the self-identity development model of delinquent adolescents according to the Islamic perspective, which are the induction set, spiritual development, physical development, and follow-up of the main components, obtain expert consensus with an agreement level of more than 75% percent, the threshold value is less than 0.2 ( $d < 0.2$ ) and the value  $\alpha$ -cut exceeds 0.5.

## C. Result and Discussion

This finding answers the research question for the design phase of the main component in the self-identity development of delinquent teenagers according to the Islamic perspective. The formation of this main component is based on the highlights of literature about the components of self-identity development of delinquent juveniles based on the consensus of experts.



We listed the main components of the self-identity development of delinquent adolescents from an Islamic perspective based on the literature review. The evaluation and validation processes of the components are analyzed using the Fuzzy Delphi (FDM) method to determine the extent of consensus amongst the group of experts who are directly involved with the context of the study.

## 1. Main components of the self-identity development of delinquent adolescents from an Islamic perspective

Confirmation of the main components in the development of delinquent youth's self-identity according to the Islamic perspective is based on the consensus of experts using the Fuzzy Delphi method (FDM). Table 4 shows the FDM method analysis of the main components.

Table 4. FDM method analysis of main components

No.	Item/Element	Terms of Triangular Fuzzy Numbers		Conditions of Fuzzy Evaluation Process			Expert Consensus	Element Accepted	Flow w/ Priority
		Threshold valued	Percentage of Expert Group Consensus, %	m1	m2	m3			
1.	Spiritual Development	0.000	100.0 %	0.90 0	1,00 0	1,00 0	0.96 7	ACCEPT	0.967 1
2.	Physical Development	0.000	100.0 %	0.90 0	1,00 0	1,00 0	0.96 7	ACCEPT	0.967
3.	Follow up	0.000	100.00 %	0.90 0	1,00 0	1,00 0	0.967 0967	ACCEPT	0.967
4.	Induction Sets	0.049	100.0 %	0.86 0	0.98 0	1,00 0	0.947 0947	ACCEPT	0.947 2

Table 4 displays the final findings for the components in the self-identity development of delinquent adolescents that have gone through the consensus and recommendations from the expert panel. This table also

displays the threshold value (d), the percentage of expert consensus, and the Fuzzy Delphi score (A) for the entire main component through the analysis of the Fuzzy Delphi method (FDM).

a. Spiritual development

Physical aspects have an important impact on individual self-development. Spiritual development plays an important role in shaping adolescents at risk (Usman et al., 2020), especially in moral rehabilitation institutions. Spiritual elements in adolescents can help strengthen moral values, mental endurance, and emotional stability. Moral rehabilitation programs often emphasize self-development by incorporating spiritual aspects, as stated in a study report in Malaysia (Abd Majid et al., 2023). Methods of spiritual development such as *tazkiyah al-Nafs* (soul purifying) and stubbornness can help adolescents face the challenges of life more positively and accept the guidance of religious values in their decisions (Rahman et al., 2022; Rahman & Abdul, 2023). Studies also show that a balanced mental rehabilitation program between physical and spiritual development can have a positive effect on the development of adolescents, shaping them into more balanced and resilient individuals (Mariam et al., 2023). By prioritizing spiritual development, adolescents at risk can undergo holistic transformations involving mental, moral, and emotional development. Thus, spiritual development not only helps to recover adolescents from delinquent behavior but also forms the foundation of their mental and moral stability (Kass & Lennox, 2005; Zhiyenbayeva et al., 2014; Rahmatullah & Azhar, 2020).

b. Physical development

Physical development plays an important role in the individual's well-being. Emphasis on the physical development aspects of self can help maintain and improve the health of the heart, lungs, and circulatory system and protect the body from various chronic diseases such as diabetes and obesity. It also contributes to positive effects on mental well-



being reduces levels of stress and anxiety, increases confidence and confidence, and improves performance, productivity, concentration, and efficiency in performing day-to-day tasks. Emphasis on the aspect of physical development has a positive impact on social relationships, such as opportunities for interaction, opportunities for interacting with others, developing social skills and improving communication skills, and promoting an active lifestyle once a man has improved his fitness levels (Abdullah & Rozani, 2020; Callaghan, 2004; Heaphy & Dutton, 2008; Wu et al., 2019).

c. Follow up program

Implementing a follow-up program or activity can improve the effectiveness of the program. The advantages of the follow-up program can help to monitor the continuity of changes that have been achieved by participants after completion of the program, provide motivational support to overcome the post-program challenges, and strengthen good relationships with participants (Martin, 2010; Noell et al., 2000, 2005; Abdullah et al., 2023). Furthermore, the follow-up program can provide an opportunity for the implementing authority to assess the effectiveness of the implemented strategy once the strategic adjustments are made necessary to improve the performance of the program (Bednall & Sanders, 2017; Morrison-Saunders et al., 2003).

d. Induction set

The establishment of the induction set within the human development program plays a crucial role in assisting individuals to adapt and navigate their responsibilities within the program (Ingersoll & Strong, 2011). This approach typically entails a variety of techniques, such as mentoring, orientation meetings, professional development workshops, additional assistance with program activities or projects, communication with supervisors or program leaders, and time set aside for self-evaluation and progress (Brown et al., 2020). Participants in the human development

program are given the tools, and resources, along with encouragement they need through the introduction set to improve their role effectiveness and reduce stress (Mintz et al., 2020). In this study, adolescents need to go through an induction set as mental preparation to follow a built-in self-identity development program.

## **2. Priority flow for main components**

All items achieved a fuzzy score value (a-cut) above 0.5 obtained a threshold value ( $d$ )  $< 0.2$  and reached a percentage of expert consensus above 75%. The data obtained at the same time confirms the validity of the four main components in the development of the self-identity of delinquent adolescents according to the Islamic perspective. This coincides with the statement of Tang & Wu (2010), explaining that if the value for the resulting element study exceeds the a-cut value = 0.5, then the item is accepted. This proves that the validity of each element produced is based on the consensus of experts in the process of evaluation and verification of elements that have been analyzed using the Fuzzy Delphi (FDM) method (Abd Majid et al., 2020). Table 5 shows the priority flow for the main components.

*Table 5. Priority flow for main components*

No.	Item / Element	Expert Consensus	Element ACCEPTED	Flow/ Priority
1.	Spiritual development	ACCEPT	0.967	1
2.	Physical development	ACCEPT	0.967	1
3.	Follow up	ACCEPT	0.967	1
4.	Induction set	ACCEPT	0.947	2

Table 5 shows that spiritual development, physical development, and follow-up items are ranked first while induction set items are ranked second. Spiritual development is the most important and the main aspect in the development process of adolescent self-identity. This is in line with the findings of a study by (Selo et al., 2015), who state that several studies characterize moral decay with the weakness of a person's spiritual aspect. Spirituality is of utmost importance to every Muslim (Usman et al., 2020).



Essentially, because Allah has ascribed the development, growth, and vicissitudes of a person's life or even a society to their heart and spirituality; thus, to make a change in oneself, it must begin from the heart or spiritually. Likewise, in dealing with moral crisis and moral decay. Spirituality is the first plain that needs to be addressed to improve one's character (Salleh et al., 2015). This proves that the aspect of spiritual development is the main component that needs to be emphasized in developing the self-identity of delinquents. Spiritual development is a pillar for physical, emotional, intellectual, and social well-being in adolescents (Paad et al., 2021; Lathifah et al., 2022).

The study of Ibrahim et al., (2022), explains that when it comes to human development through the formation of character or self-identity, it is widely discoursed by one of the renowned Islamic scholars, Imam al-Ghazālī in his book entitled *Iḥyā' 'Ulūm al-Dīn*, albeit he omits to discuss the development of human capital from the viewpoints of definition and terminology. Humans consist of physical and spiritual components, but he emphasizes more on the internal aspects or the spiritual. In line with the concepts that he articulates in *Iḥyā'*, he elucidates knowledge in its apparent sense as well as that of spirituality (Hanefar et al., 2016).

In addition, the physical aspect is also substantial in helping adolescents achieve well-being and prosperous life. This physical aspect includes taking care of the physical body by consuming healthy food to enable adolescents to perform worship well and with ease. As the Arabic proverb says, a healthy mind is in a healthy limb. This is in line with the findings of Usman et al., (2020), who view worship as one substantial mechanism that needs to be strengthened in physical, mental, and spiritual development. Particularly so when the implementation of worship can shape one's personality either psychologically or spiritually to attain composure and affinity for absolute truth. Indirectly, worshipping enables adolescents to experience contentment considering that materials are only tools for the perfection of life (Huda et al., 2019).

Further, the aspect of follow-up is also necessary to ensure the stability of adolescents' self-identity after being developed or restored while in the rehabilitation center. This is in line with the study of Paad et al., (2021), who explains that after adolescents receive an injection of motivation in the self-development process, they need to undergo follow-up intervention in the implementation phase, aiming at ensuring a truly stable motivation so that their self-development goals are truly realized. Follow-up actions are also implemented during the counseling process; as elucidated by Dharsana et al., (2020), counseling is a procedural process; therefore, to produce an effective counseling session, it is essential to go through the stages in the development of the process and it is found that the last stage of the counseling process is 'do-follow up' to ensure that all actions are implemented as a driving force for the client. Therefore, this follow-up component is seen as vital in the efforts to build and develop the self-identity of delinquent juveniles so that they always receive motivation and support to keep changing for the better (Hu et al., 2017).

Finally, is the induction set. An induction set is a technique of introducing a subject to attract attention and motivate students (Verbeke et al., 2011). Jeng et al. (1997), state that induction set is the beginning or introduction of a teaching process. Meanwhile, Okafor & Anaduaka (2013), both opine that the induction set is indispensable as at this stage a teacher introduces ideas and instills in the students' minds the teaching materials to be conveyed. This is in line with the study of Ingersoll and Strong (2011), who find that there are several practices of induction set implemented by teachers, namely the method of questioning, topic discussion, linking previous lessons, and ensuring students are prepared first as induction set. Mohamed and Jasmi's study also shows four main elements in the implementation of Induction set in the classroom that are suitable for preschool pupils, namely structuring, cognitive connection, creating motivation, and attracting attention as a practice for teachers (Mohamed & Jasmi, 2021; Husna & Dewi, 2021).

Therefore, based on past studies, it has been proven that implementing induction sets is effective and shows positive and good



results to help change, develop, and improve an individual's self-identity, whether among students or adolescents. For example, there is an intervention program in the form of rehabilitation that has been created to help troubled adolescents such as with anti-social behavior to recover their physical and spiritual health (Ibrahim et al., 2020).

#### **D. Conclusion**

Islam places great emphasis on all aspects to be able to create balanced adolescents, particularly from the standpoint of spiritual and physical life in this world as well as achieving the blessings and mercy of Allah. The findings of the study illustrate that all the components of the self-identity development model of delinquent adolescents according to the Islamic perspective, which are the induction set, spiritual development, physical development, and follow-up of the main components, obtain expert consensus with an agreement level of more than 75% percent, the threshold value is less than 0.2 ( $d<0.2$ ) and the value a-cut exceeds 0.5.

The components presented are important to develop the personality and behavior of adolescents in a better direction so that their involvement in wrongdoing does not recur. The ability to implement forming, restoring, and developing self-identity of delinquent adolescents requires participation from all parties. Thus, the elements presented in this study can be used as a guide by moral rehabilitation centers in Malaysia to manage the problems of delinquent adolescents according to the Islamic perspective.

#### **Acknowledgments**

Appreciation is given to the Fundamental Research Grant Scheme (FRGS) 2020. No. Grant:FRGS/1/2020/SS10/KUIS/01/1, Selangor International Islamic University College (KUIS) entitled "Formation of a Model for the Development of the Identity of Delinquent Adolescents in Malaysia According to Islamic Perspective".

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